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TRANSMITTAL FOR CHANGES TO RESOURCE CONSERVATION AND RECOVERY ACT FACILITY INVESTIGATION REPORT ZONE J CNC CHARLESTON SC
11/21/1996
NAVFAC SOUTHERN

DEPARTMENT OF THE NAVY
SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
PO. BOX 190010
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NORTH CHARLESTON, S.C. 29419-9010

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Code 1877
21 November 1996

Mr. G. Randall Thompson
Director, Division of Hazardous and Infectious Waste Management
Bureau of Solid and Hazardous Waste Management
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, SC 29201

Subj: ZONE J RCRA FACILITY INVESTIGATION WORKPLAN

Dear Mr. Thompson,

The purpose of this letter is to submit changes to the Zone J Final RCRA Facility Investigation Workplan for Naval Base Charleston. The Workplan is submitted to fulfill the requirements of condition IV.B.2 of the RCRA Part B permit issued to the Navy by the South Carolina Department of Health and Environmental Control and U.S. Environmental Protection Agency.

Comments made by the Department and the EPA on the initial submittal have been addressed and included in this submittal. The Response to Comments which is also included was reviewed with Department and EPA representatives in order to ensure the comments were adequately addressed. We request that the Department and the EPA review the page changes to the workplan and responses to comments. Please provide comment or approval as appropriate. If you should have any questions, please contact Brian Stockmaster or Matthew Hunt at (803) 820-7481 and (803) 820-5525 respectively.

Sincerely,

M. A. HUNT
Environmental Engineer
Installation Restoration III

Encl: Zone J Final RFI Workplan, dated 20 November 1996
Copy to:
SCDHEC (Bergstrand, Tapia), USEPA (3) (Brittain)
CSO Naval Base Charleston (Camp), SPORTENVDETCHASN (Dearhart)

RESPONSE TO
ENVIRONMENTAL PROTECTION AGENCY COMMENTS ON THE
RESOURCE CONSERVATION AND RECOVERY ACT FACILITY INVESTIGATION
WORK PLAN FOR ZONE J
Draft, November 22, 1995

The following comments were received July 18, 1996 and are a result of the USEPA review of the *Draft-Final Zone J RFI Work Plan (submitted November 22, 1995)*.

COMMENT 1:
The additional information on dredging activities in the Cooper River, added to Section 4.2.6, Pages 4-45 to 4-46 in the Draft Zone J RFI Work Plan is appreciated. However, rather than just mentioning the types of contaminants found in analysis of the 1991 and 1992 pre-dredging sediment samples, it would more helpful to include the actual chemical concentrations.

RESPONSE:
The available chemical concentrations for pre-dredged sediments have been included.

COMMENT 2:
The response to the comment concerning the possible need for evaluating a larger portion of Clouter Island for ecological risk is good. It is recommended that the information contained in the response to comments be included in the Work Plan in Section 4.2.8, pages 4-57 to 4-60. (This section was called Section 3.2.8 in the June 9, 1995, Draft Final Zone J RFI Work Plan.)

RESPONSE:
This additional text regarding the ecological risk assessment of Clouter Island has been added to the ESA VIII evaluation.

COMMENT 3:
Page 1-8, Section 1.2: If contaminants from upland AOCs/SWMUs have migrated into the Zone J water bodies and have settled in the sediments, the contaminated sediments might be considered as a secondary contaminant source, particularly with respect to ecological concerns.

RESPONSE:
As stated in Section 2, sediments (as well as surface water, groundwater, and soil) potentially contaminated by upland AOCs/SWMUs are a primary concern of the Zone J RFI. The potential for these "receptor" media to act as a secondary contaminant source is understood.

COMMENT 4:
Page 3-11, Section 3.3: Although the potential for natural recovery of contaminated areas is relevant to risk, it is more of a risk management, rather than a risk assessment, topic in [illegible]

to possible remedial action or mitigation. A discussion of natural recovery might be more appropriate in a Corrective Measures Study rather than in the risk characterization portion of the ecological risk assessment.

RESPONSE:
Although a site's potential for natural recovery is considered relevant in the early stages of risk assessment (especially in the evaluation of future risk), it is agreed that this discussion is more appropriate as a component of risk management. This sentence will be removed.

COMMENT 5:
Page 4-46, Section 4.2.6: The original purpose of mapping sediment grain size distribution was to aid in selection of sediment sampling locations, particularly in depositional areas. Section 4.2.6 states that such mapping might be inconclusive, in view of the dredging operations conducted periodically in the area. The general information given on Page 4-49, Section 4.2.6, concerning the relationship between surface water hydrology, shoreline structures such as piers, and deposition of fine-grained sediment is probably sufficient information on general sediment particle size distribution for now. However, sediment grain size must be determined for sediment samples collected for chemical/biological analyses, to facilitate evaluation of the data and the potential for ecological effects.

RESPONSE:
The analyses of Zone J sediment samples will include grain size.

COMMENT 6:
Page 4-44, Section 4.2.6: Although the primary ecological risk from NAVBASE to the Cooper River might be the "discharge of storm water and past discharges of industrial wastewater," the migration of NAVBASE ground water contaminants must be also be considered.

RESPONSE:
The migration of NAVBASE groundwater contaminants will be monitored through analysis of groundwater samples collected from the numerous perimeter monitoring well pairs located along the base waterfront. This migration potential has been addressed in the section on fate and transport.

COMMENT 7:
Page 4-52, Section 4.2.7: The priority pollutant analytical data for Shipyard Creek dredged materials were not available for inclusion in the Final Zone J RFI Work Plan. When the data becomes available, they should be evaluated with respect to their relevance to the Zone J RFI.

RESPONSE:
As noted in the response to USEPA Comment 8, the Navy has been involved in an ongoing effort to obtain and review data from other studies what may have some relevance to Zone J.

COMMENT 8:
A lot of environmental investigatory work has been done in the water bodies around Naval Base Charleston. EPA has previously recommended that the results of these investigations be reviewed and analyzed to focus where Naval Base Charleston should collect samples, and to avoid needless duplication of effort. This requires coordination with other agencies. The results of this coordination and data review are not apparent in the subject Draft Zone J RFI Work Plan. Three contacts to begin with are:

Ms. Carolyn Thompson
RCRA Compliance Specialist
US Environmental Protection Agency, Region IV
Phone (404) 347-3555, X 6386

Dr. Jeff Hyland, Manager
EMAP for Carolinian Province (NOAA)
Phone (803) 762-5415

Dr. Fred Holland, Director
Marine Resources Research Institute
Contaminated Creek Portion of Charleston Harbor Projects
Phone (803) 762-5107

Information from these and other contacts should be incorporated into the Zone J RFI Work Plan.

In the Work Plan, other sources are discussed but the results are not used. In particular, three studies are mentioned: 1) A Physical and Ecological Characterization of the Charleston Harbor Estuarine System, 1990; 2) a 1992 soil study by the U.S. Army Corps of Engineers; and 3) a state-sponsored study "recently conducted' to assess bioeffects and water quality standards.

Attached is a copy of a letter form Dr. A.F. Holland, with the South Carolina Department of Natural Resources, containing some EMAP sampling data that have not undergone fully quality assurance reviews. These data are from a sediment sample taken in Shipyard Creek. Note that the arsenic, chromium, copper, nickel, fluoranthene and pyrene are all above EPA Region IV screening levels. These data should be sufficient for a preliminary problem formulation. This problem formulation should be presented in the Zone J Work Plan.

The Tidal Creek Project mentioned in Dr. Holland's letter is discussed in a March 1996, Interim Report entitled The Tidal Creek Project. Information contained in this report should be considered in the Zone J RFI Work Plan.

RESPONSE:
See response to Comment 7. The above-referenced state-sponsored study was in tbe preliminary reporting stage and researchers were understandably reluctant to submit unvalidated and potentially inaccurate data. Reasonable effort has been made to obtain and incorporate existing, relevant, and available data into the Zone J RFI Work Plan. It should be noted that the scope of these previous studies has typically been on a much larger scale, focusing on a significant section of the eastern seaboard with few samples collected near NAVBASE. The relevance and usefulness of the findings presented in these studies is limited and it is not expected that this existing information will significantly reduce the level of effort proposed for the Zone J RFI.

With regards to USEPA's concerns regarding agency coordination and inclusion of relevant data, the Navy would like reference a June 20, 1996 letter from the SCDNR, which states that "...there has been a concerted effort in recent months on the part of Naval Base Charleston personnel and contractors to ensure that this issue is adequately addressed".

Regarding the Tidal Creek Study, information generated by this broad assessment has been incorporated into the Zone J RFI Work Plan. Its omission from the previous draft was unavoidable, as it was published 5 months after the work plan was submitted.

COMMENT 9:
On Page 2-5, it says:

> Because numerous potential contaminant sources other than NAVBASE exist, direct analysis of tissue samples is not considered the most appropriate means of evaluating biota impacts. Tissue concentrations will be estimated based on surface water and sediment concentrations, chemical characteristics, and reasonable migration patterns of representative species.

On Page 4-50, it says:

> Due to the transient nature of most of the selected tissue species (from an earlier study) (except oysters) and the fact that NAVBASE is not necessarily the specific contributor of contaminants in the area, tissue information will not be included in this overview.

The Work Plan seeks to make the argument that discovering levels of contaminants in biota is unimportant because there are several possible contributors of contaminants, i.e., Hess, W.R.

Grace, MacAlloy. This argument is flawed. EPA reiterates the earlier point about coordination with other agencies and full use of existing data.

It should be possible to design a study, working in concert with other contaminant generators nearby, that will delineate the contaminants in biota and probably link their presence to specific waste streams. This effort should not be ignored.

Seafood consumption will likely be the centerpiece of the Zone J human health risk assessment. Fin fish, crabs, and oysters should all be sampled to determine the effect of mobile versus sessile lifestyles. Human consumption of all three types of animals occurs. In addition, the diets of these organisms should be considered.

RESPONSE:
The Navy respects the EPA's suggestion to coordinate with neighboring property owners in effort to assess potential risks to the Cooper River. It is not, however, the Navy's desire to conduct an overall non-point source risk assessment of the downstream portions of the Cooper River. If assessment of the Cooper River indicates that multiple contaminant contributors have created a potential human health concern, it is not considered to be solely the Navy's responsibility to characterize such associated contamination and, therefore, this Work Plan is not designed to do so.

COMMENT 10:
Many of the comments which EPA made on the June 9, 1995, Draft Zone RFI Work Plan remain inadequately addressed. EPA chooses not to repeat those same comments here but simply refers Naval Base Charleston to the previous comments for re-consideration. Considering the meetings which have been held to discuss this document, a previous verbal agreement reached, and the provision of written comments, EPA considers this to be a significant concern. As examples, EPA will note only three comment regarding these previously made but inadequately addressed comments:

a. At the April 28, 1995, scoping meeting, EPA pointed out that the proposal to focus the Zone J RFI Work Plan on ecological risk assessment was not satisfactory, and that the Zone J RFI Work Plan must comply with all RFI requirements as contained in the HSWA portion of the RCRA Permit. Yet, EPA's comment was ignored. EPA made this comment again as Comment 1 in response to the June 9, 1995, Draft Zone J RFI Work Plan. In a September 22, 1995, meeting to discuss the SCDHEC and EPA comments, this comment was made again. Yet, this comment has essentially been ignored in the November 22, 1995, Draft RFI Work Plan. While the ecological risk assessment is an important part of any RFI, the RFI is more than an ecological risk assessment. EPA's comment number 1 on the Draft Zone J RFI Work Plan remains to be adequately addressed. EPA will not approve a Zone J RFI Work Plan which focuses

primarily on ecological risk assessment and does not adequately address all RFI requirements contained in the HSWA portion of the RCRA Permit.

RESPONSE:
The EPA's comment regarding the ecological focus of the Zone J RFI Work Plan was not ignored, but rather considered to be a result of either lack of clarity or miscommunication. Repeated efforts were made by the Navy in the meetings and in previously revised documents to clarify the unique objectives of the obviously ecologically-oriented Zone J RFI. The Navy reiterates that some RCRA Permit requirements are not readily applicable to Zone J.

b. Comment 4 on the June 9, 1995, Draft Zone J RFI Work Plan concerned fate and transport of contaminants. Yet, there is no evidence that fate and transport has been considered in the Zone J RFI Work Plan. This must be addressed.

RESPONSE:
Although the Zone J RFI Work Plan readdresses the issue of fate and transport at NAVBASE, Section 2.1 clearly presents evidence that fate and transport has been considered.

c. Comment 11 on the June 9, 1995, Draft Zone J RFI Work Plan concerned the use of CERCLA terminology. The Response to Comments submitted with the Draft #2 Zone J RFI Work Plan stated that CERCLA terminology had been changed to RCRA terminology. Yet, no change was made in the use of CERCLA terminology between June 9, 1995, and the November 22, 1995, Draft Zone J RFI Work Plans. (See Section 2.2.)

RESPONSE:
This apparently misleading regulatory terminology has been revised.

COMMENT 11:
Page 1-5, Section 1.2 states that:

> The Zone J RFI will also ensure that each zone-specific area of concern/solid waste management unit (AOC/SWMU) investigation includes a complete and formal ecological risk assessment (ERA) following the strategies presented in Section 3, Volume III of the Comprehensive RFI Work Plan.

This raises two questions:

a. How will this be done?

b. What is the relevance of this to Zone J?

RESPONSE:
The majority of AOC/SWMU-specific ERAs will be conducted under the guidance of each approved zone-specific work plan. Each month, Zone J personnel receive updates from respective managers of other zones which providing information regarding the status of ongoing ecological studies. The ERA for those sites which may impact a Zone J water body will be incorporated either in part or in their entirety into the Zone J RFI. For example, Zone K will assess storm water outfalls and Zone E will assess the dry docks. If risk potentials are high for such non-Zone J sites, a concerted effort will be made to relate that risk to Zone J receptor areas. These elements have been considered in the Zone J RFI Work Plan.

COMMENT 12:
Page 1-8, Section 1.3 deals with the human health risk assessment in Zone J. In entirety, it states:

> 1.3 Human Health Assessment
> Risks to human health will be assessed as outlined in Section 2 of the BRA. Each zone will be responsible for addressing all issues regarding human health.

For a document that is approximately three inches thick and deals mostly with ecological risk assessment, two sentences for human health risk assessment is totally inadequate.

RESPONSE:
Although the Zone J RFI Work Plan has readdressed the issue of human health risk assessment at NAVBASE, Section 2.1 included a more detailed discussion of human health concerns.

COMMENT 13:
Page 2-1, Section 2.1, third sentence and throughout the work plan. The concept is presented that in the absence of visibly affected receptors, no samples will be taken. EPA has been very clear from the beginning that no area will be identified as "clean" without Data Quality Objective Level 3 or 4 data. Simply showing the absence of visibly affected receptors is not adequate.

RESPONSE:
The agency's paraphrase is inaccurate and out of context. Rather, it is the Navy's intent that for situations where no obvious link can be made between observable impacts and proven NAVBASE contaminants, no specific assessment can or will be performed. Furthermore, if there is no visible or reasonably expected presence of receptors, affected

or otherwise, it is deemed unnecessary to conduct a risk assessment. This clarification has been included in the work plan.

COMMENT 14:
Page 2-3, Section 2.1, commits to the analysis of RFI data without presenting a work plan as to how this analysis will be performed. Also, the statement is made that strategies to discuss fate and transport are discussed in detail in the individual zone-specific work plans. Regardless of the truth of that statement for other zones, the issue at hand is the fate and transport in Zone J which has not been addressed.

RESPONSE:
Regarding the analysis of RFI data, text has been added to describe how the interpretation of pertinent zone-specific RFI data will have a significant role in the Zone J RFI. Regarding fate and transport, the Zone J RFI Work Plan clearly did not reference sole dependence upon fate and transport discussions in other zone-specific work plan. Rather, it referred to the zone-specific sampling strategies and their relationship to the Zone J investigation. Due to the aquatic sites associated with Zone J, a fate and transport discussion appropriate for this media has been included.

COMMENT 15:
Pages 5-1 — 5-2, Sections 5.0, 5.2, and 5.4. In substance, the statement is made that

> ...the Comprehensive RFI Work Plan will be followed except when a decision is made to deviate and if Naval Base Charleston considers the deviation to be significant, agency approval will be obtained.

EPA has said from the beginning that all procedures must be written down and agreed upon by EPA before they are used. Any deviations from an approved work plan, or any data collected with an unapproved work plan, will be at the risk of Naval Base Charleston.

RESPONSE:
Clarification will be made in the text regarding the Navy's intent to submit written notification to the USEPA of proposed changes or deviations in procedures prior to implementation.

RESPONSE TO
SOUTH CAROLINA DEPARTMENT OF NATURAL RESOURCES
COMMENTS ON THE RCRA FACILITY INVESTIGATION WORK PLAN
FOR ZONE J
Draft-Final, November 22, 1995

The following comments were received June 28, 1996 and are a result of the SCDNR review of the *Draft-Final Zone J RFI Work Plan (submitted November 22, 1995).*

Responses to Specific Comments:

COMMENT 1:
Page 4-44, first paragraph — In the description of the waters of the Cooper River, the actual SCDHEC classification of Class SB should be included with the verbage and what it means

RESPONSE:
The Cooper River designation as a Class SB water body has been included.

COMMENT 2:
Page 4-44, third paragraph — We agree that the "primary ecological risk from NAVBASE to the Cooper River is the discharge of stormwater and past discharges of industrial wastewater." However, discharge of groundwater is also a contributing factor and must be included in this discussion.

RESPONSE:
The potential impacts associated with groundwater discharge to Cooper River has been addressed. Key to this assessment will be the data obtained from groundwater samples from the perimeter well pairs in Zones A, B, E, G, and I, installed to determine the nature of off-site migration to the Cooper River.

COMMENT 3:
Page 4-45, third paragraph — Figure 1-2 showing these outfalls should be referenced here.

RESPONSE:
The appropriate figure has been referenced.

COMMENT 4:
Page 4-46, first paragraph — Levels of the detected contaminants from the analysis of pre-dredging sediment samples in 1991 should be included in some manner. A map of sampling locations and a table of results for those contaminants which were detected would be helpful.

Also, in order to determine the meaningfulness of this data, detection limits for all parameters are needed.

RESPONSE:
All available and pertinent analytical information associated with dredging of the Cooper River has been incorporated.

COMMENT 5:
Page 4-46, third paragraph — The statement that "...mapping of sediment grain size and organotin content may be inconclusive" is unclear. Inconclusive as to what? We agree that not only dredging, but also redistribution of sediments due to natural processes has certainly resulted in constituents not always being in the location where they were originally deposited. However, this should not be used as an excuse for not ascertaining to what extent this is, indeed, the case and the levels of contamination may be present. While the information summarized on page 4-49 is probably sufficient for use to assist in refining appropriate locations for sampling, grain size as well as total organic carbon (TOC) from samples to be taken as part of this effort is necessary to enable proper interpretation of the data and the potential for ecological effects.

RESPONSE:
The misleading reference to organotin content was in error. It should have read "organic content". Nevertheless, this sentence has been reworded to read "Preliminary evaluation of Cooper River dredging activities indicates that mapping of sediment grain size and total organic content may not accurately define those areas where NAVBASE contaminants may accumulate. Considering the dredging and natural redistribution of sediments along the main channel of the Cooper River and near the shipyard piers, physical substrate information obtained would be obsolete upon any redredging or passage of a significant period of time. This information would then be of limited use as a decision-making tool during a corrective measures study or remedial action. Instead, TOC and grain size analyses will be included with the analytical suite of parameters proposed for each sampling location to better assess the potential impacts to the water body."

It is agreed that determining the extent of dispersed contamination is important. It would be both more effective and in the interest of the Navy to collect these parameters as presently proposed, which considers those areas typically suspected to have higher levels of contamination (around outfalls and piers) may have been removed during dredging. As stated in the sampling and analysis plan, TOC and grain size are included in the proposed analytical suite of sediment parameters.

COMMENT 6:
Page 4-50, third paragraph — At least a brief summary of the tissue information from this study, especially for oysters, should be included.

RESPONSE:
A summary of the tissue information presented in the Charleston Harbor Study has been included.

COMMENT 7:
Page 4-50, fourth paragraph — There is a problem with the wording of the last sentence in this paragraph which needs to be corrected.

RESPONSE:
The text has been corrected.

COMMENT 8:
Page 4-51, first paragraph — Relevant data received from SCDNR from the Tidal Creek Project Report and EMAP personnel should be inserted to replace the verbage regarding these studies.

RESPONSE:
The pertinent data from these and other studies has been incorporated.

COMMENT 9:
Page 4-51, Sampling Plan — It is the opinion of SCDNR that the number and distribution of stations in the Cooper River should be adequate for further characterization of the nature and extent of contamination in this system from NAVBASE activities.

RESPONSE:
Noted.

COMMENT 10:
Page 4-52, Section 4.2.7 ESA VII - Shipyard Creek and Associated Wetlands — The data from the analysis of USACOE sampling in Shipyard Creek should be available and should be included.

RESPONSE:
The pertinent data from the USACOE studies has been incorporated.

COMMENT 11:
Page 4-54, Previous Investigations — Levels for the contaminants identified in the USACOE study should be included. Relevant information from the SCDNR tidal creek study and EMAP stations should be included as well to the extent that it is available.

RESPONSE:
The pertinent data from the USACOE studies has been incorporated.

COMMENT 12:
Page 4-56, Sampling Plan — The sampling plan for Shipyard Creek is acceptable to the SCDNR.

RESPONSE:
Noted.

COMMENT 13:
Page 4-60, Sampling Plan and Response to Comment 25 — We are in agreement with the comment regarding the need for more extensive sampling on Clouter Island. It may be appropriate to simply include the verbage in the response to this comment in this section to address this issue.

RESPONSE:
The text included in the response to Comment 25 has been incorporated into the discussion of assessment of Clouter Island.